SITE NEED STATEMENT

General Reference Information

Need Title:	**Non-Intrusive Surveys in Pipes and Vessels**
Need Code:	NV09-0200-12
Need Summary:	Instrument to identify and quantify radioactive contaminants and residual materials inside pipes and vessels which requires few access points into the interior of the system; current methods for the survey of pipes and vessels require access points within 60-70 feet of each other. Additionally, total beta and total alpha (fixed and removable) data will allow a determination of appropriateness for free release without extensive sampling.
Origination Date:	August 1, 2001
Need Type:	Technology
Operations Office:	NNSA/NV
Geographic Site Name:	Nevada Test Site
Project:	NV214/Industrial Sites
National Priority:	Medium
Operations Office Priority:	12 of 13

Problem Description Information

Operations Office Program Description:	The NNSA/NV Environmental Restoration Program encompasses activities that assess the degree of contamination resulting from the testing program at the Nevada Test Site, the Nellis Air Force Range, the Tonopah Test Range, and eight offsite locations, and performs actions required by federal and state regulations. The objects of the Program are to: (1) identify the nature and extent of the contamination, (2) determine its potential risk to the public and the environment, and (3) perform the necessary corrective actions in compliance with applicable regulatory guidelines and requirements.
Need/Problem Description:	An instrument is needed to identify and quantify radioactive contaminants and residual materials inside pipes and vessels that requires few access points into the interior of the system; current methods for the survey of pipes and vessels require access points within 60-70 feet of each other. Additionally, total beta and total alpha (fixed and removable) data will allow a determination of appropriateness for free release without extensive sampling.
Functional Performance Requirements:	Requirements include: • Portable system with real-time output to operate in a limited space • Capability to detect, characterize, and quantify radioactive contaminants and residual materials inside pipes and vessels (radioisotopes of primary concern are cobalt, cesium, and uranium) • Cover at least 350 feet • Involve gross alpha, gamma, and beta counting • Allow for remote visual inspection of pipe interiors.
Definition of Solution:	The ideal solution would provide data on residual radioactive contamination in pipes and vessels with detection capabilities in the range of free release criteria for alpha, beta, and gamma.
Targeted Focus Area:	Decontamination and Decommissioning
Potential Benefits:	Efficient, less labor-intensive survey resulting in cost savings and reduced potential of worker exposure.
Potential Cost Savings:	Based on previous characterization experience, the new technology will result in a 10% schedule savings, or approximately $38,323.
Potential Cost Savings Narrative:	For underground pipes requiring surveys, cost savings can result from technologies that require less labor intensive survey work and more efficient means of data collection and analysis. Sampling using proven remote detection technologies will result in a significant reduction in the number of physical samples and analyses and will produce cost savings.
Technical Basis:	New technology will allow for more rapid survey of pipes and vessels to identify radioactive contamination.
Cultural/Stakeholder Basis:	Timely completion of corrective actions for septic systems at the NTS and TTR is of general concern to stakeholders.
Environment, Safety, and	Survey methods requiring fewer access points will reduce worker exposure and

Health Basis:	impact to the environment through excavation.
Regulatory Drivers:	Characterization and remedial actions are required by the FFACO. Characterization, alternatives selection, and remedial action processes are specified. Although the use of any specific technologies is not specified, the use of technologies to enhance the process of characterization or remediation or provide cost or risk benefits and the overall efficiency of the environmental restoration program is encouraged.
Milestones:	Not applicable
Material Streams:	LLW Contaminated D&D Rubble & Liquids (1025) Technical risk score 3. Not on critical path to closure.
TSD System:	Not applicable
Major Contaminants:	Cobalt, cesium, and uranium
Contaminated Media:	Contaminated pipelines
Volume/Size of Contaminated Media:	Varies with specific CAU
Earliest Date Required:	2001
Latest Date Required:	2006

Baseline Technology Information

Baseline Technology Process:	Survey instruments are inserted every 60-70 feet in pipes and vessels
Life-Cycle Cost Using Baseline:	$383,233
Uncertainty on Baseline Life-Cycle Cost:	The project can be completed using the baseline technology, therefore, there are no technical risk factors involved in any uncertainty of the life-cycle baseline.
Completion Date Using Baseline:	2006

Points of Contact (POC)

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